MARTIN BRINKMANN AG
Forschung und Entwicklung

Appendix II

DETERMINATION OF WATER IN TOBACCO WITH THE DESTILLATION METHOD USING CYCLOHEXANE; REPORT ON A COLLABORATIVE STUDY

by

G. Lipp and H. Böttcher

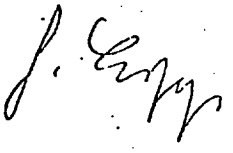
Between November 1973 and February 1974 a collaborative study was made between 17 laboratories, all members of Tabakkolloquium, to examine the destillation method for the determination of water in tobacco after replacing benzene by cyclohexane. This study included three different types of cut reg: virginy, blend and stems different in moisture. One laboratory prepared all the samples using air tight tins for delivery. Three tins of each of the three tobaccos were investigated in duplicate runs by all the laboratories, i.e. in total six single values per lab.

The main results of the statistical evaluation are given in the tables 1 to 4 showing significant lower mean values for three of the 17 laboratories obviously due to individual reasons. The results of the other 14 labs are in good correspondence within a range of 0,33 % moisture. In the meantime further improvement of the method could be achieved, therefore we are convinced that this method is suitable for a CORESTA Standard Method.

Remarks:

(1) a complete report of this collaborative study will be published in the near future in "Beiträge zur Tabakforschung";

(2) an exact description of the procedure will be available within several weeks.



1000876236

Source: https://www.industrydocuments.ucsf.edu/docs/nkxk0000

table 1

mean values of tins
(averages of two determinations each)
(all values in % water)

tobacco		virginy			blend			stems		
tin		1	2	3	1	2	3	1	2	3
lab	1	14,01	13,99	14,21	12,13	12,16	12,07	15,07	15,13	15,06
	2	13,74	13,50	13,59	12,27	12,20	12,13	15,86	15,69	15,63
	3	13,83	13,72	13,80	12,12	11,97	12,22	15,55	15,80	15,88
	4	14,00	14,03	14,13	12,41	12,48	12,18	15,94	16,02	16,12
	5	14,20	14,07	14,13	12,53	12,41	12,30	15,97	15,95	15,98
	6	14,35	13,85	14,00	12,50	12,50	12,65	15,85	15,95	16,00
	7	14,18	14,08	14,10	12,50	12,58	12,43	15,88	15,98	16,03
	8	14,25	14,21	14,10	12,35	12,35	12,24	16,12	16,20	16,00
	9	14,19	14,03	14,27	12,52	12,39	12,28	15,90	16,10	16,19
	10	14,04	14,21	14,16	12,48	12,33	12,43	16,05	16,11	16,29
	11	14,10	14,20	14,25	12,60	12,70	12,20	16,00	16,00	16,20
	12	14,15	14,10	14,27	12,37	12,59	12,42	16,16	16,06	16,36
	13	14,26	14,35	14,19	12,61	12,55	12,65	16,24	16,23	16,29
	14	14,43	14,45	14,32	12,56	12,39	12,46	16,18	16,34	16,26
	15	14,49	14,59	14,63	12,51	12,44	12,42	16,06	16,30	16,33
	16	14,52	14,35	14,33	12,75	12,70	12,70	16,25	16,30	16,30
	17	14,55	14,30	14,50	12,80	12,70	12,55	16,10	16,30	16,50

100876237

Source: https://www.industrydocuments.ucsf.edu/docs/nkxk0000

table 2

mean values of tobaccos and laboratories

(all values in % water)

tobacco	virginy	blend	stems	laboratory mean
lab 1	14,07	12,12	15,09	13,76
2	13,61	12,20	15,73	13,84
3	13,78	12,10	15,74	13,88
4	14,05	12,36	16,03	14,15
5	14,13	12,41	15,97	14,17
6	14,07	12,55	15,93	14,18
7	14,12	12,50	15,96	14,20
8	14,19	12,31	16,11	14,20
9	14,16	12,40	16,06	14,21
10	14,13	12,41	16,15	14,23
11	14,18	12,50	16,06	14,25
12	14,17	12,46	16,26	14,30
13	14,27	12,60	16,25	14,37
14	14,47	12,47	16,26	14,40
15	14,57	12,46	16,23	14,42
16	14,40	12,72	16,28	14,47
17	14,45	12,68	16,30	14,48
tobacco mean	14,17	12,43	16,02	14,21

1000876238

Source: https://www.industrydocuments.ucsf.edu/docs/nkxk0000

table 3

standard deviations of tobaccos and laboratories
(all values in % water)

tobacco	virginy	blend	stems	laboratory mean
lab 1	,121	,045	,037	,078
2	,121	,067	,116	,104
3	,056	,125	,172	,127
4	,068	,156	,090	,111
5	,065	,115	,015	,076
6	,256	,086	,076	,162
7	,052	,075	,076	,068
8	,076	,063	,100	,081
9	,122	,120	,148	,130
10	,088	,073	,127	,099
11	,076	,064	,115	,172
12	,087	,115	,264	,174
13	,080	,050	,032	,057
14	,047	,085	,080	,072
15	,072	,047	,147	,098
16	,104	,028	,028	,064
17	,132	,125	,200	,156
tobacco mean	,106	,110	,125	

1000876239

Source: https://www.industrydocuments.ucsf.edu/docs/nkxk0000

table 4

statistical evaluation of significant differences between laboratory mean values (95 %)

(all values in % water)

lab	$\bar{x}$	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
17	14,48																	
16	14,47																	
15	14,42																	
14	14,40																	
13	14,37																	
12	14,30																	
11	14,25																	
10	14,23																	
9	14,21																	
8	14,20																	
7	14,20																	
6	14,18	+																
5	14,17	+	+															
4	14,15	+	+															
3	13,88	+	+	+	+	+	+	+	+	+	+	+	+	+				
2	13,84	+	+	+	+	+	+	+	+	+	+	+	+	+	+			
1	13,76	+	+	+	+	+	+	+	+	+	+	+	+	+	+			

10008762 40

Source: https://www.industrydocuments.ucsf.edu/docs/nkxk0000